

THE INVENTION CLAIMED IS

1. A system for denoising data utilizing parallel processors and wavelet denoising techniques, comprising:

- a reading and displaying module for reading and displaying said data;
- a partitioning and distributing module for partitioning said data into regions and distributing said regions onto said processors;
- a communication requirements module for determining communication requirements among said processors;
- a wavelet transforming module for wavelet transforming said data;
- a thresholding wavelet coefficients module for thresholding wavelet coefficients of said wavelet transformed data;
- an inverse wavelet transforming module for inverse wavelet transforming said data to obtain denoised data; and
- a linking system for linking said reading and displaying module, said partitioning and distributing module, said communication requirements module, said wavelet transforming module, said thresholding wavelet coefficients module, and said inverse wavelet transforming module.

2. A method of denoising data utilizing parallel processors and wavelet denoising techniques, comprising the steps of:

- reading and displaying said data in different formats;

partitioning said data into regions and distributing said regions onto said processors;

determining communication requirements among said processors according to said wavelet denoising technique and said partitioning of said data;

transforming said data into different multiresolution levels with the wavelet transformed according to said wavelet denoising technique and using said communication requirements, said transformed data containing wavelet coefficients;

thresholding said wavelet coefficients according to said wavelet denoising techniques;

transforming said wavelet coefficients according to said wavelet denoising techniques; and

transforming the denoised data back into its original reading and displaying data format.

3. A method of denoising data utilizing parallel object-oriented processors and wavelet denoising techniques, comprising the steps of:

reading, writing, and displaying engineering, business and other data in different formats using a reading, writing, and displaying parallel object-oriented module;

partitioning said data into regions and distributing said regions onto said parallel object-oriented processors using a partitioning and distributing parallel object-oriented module;

determining communication requirements among said parallel object-oriented processors according to said wavelet denoising technique and said partitioning of said data using a determining communication requirements parallel object-oriented module;

transforming said data onto different multiresolution levels with the forward wavelet transform according to said wavelet denoising technique and using said communication requirements using a data transforming parallel object-oriented module, said transformed data containing wavelet coefficients;

thresholding said wavelet coefficients according to said wavelet denoising technique requirements using a thresholding parallel object-oriented module;

transforming said thresholded wavelet coefficients using the inverse wavelet transform according to said wavelet denoising technique requirements using a transforming thresholded wavelet parallel object-oriented module, to obtain final denoised data; and

linking appropriate foregoing parallel object-oriented modules as necessary using a scripting language.

4. A method of denoising data utilizing parallel object-oriented processors, comprising the steps of:

establishing an object-oriented library of denoising techniques based on thresholding of wavelet coefficients including a suite of different wavelet filters, wavelet transforms, boundary treatment rules, threshold calculation methods, threshold application functions, and noise estimation techniques;

using a data distribution algorithm for partitioning said data into contiguous rectilinear collections of regions;

configuring said parallel object-oriented processors according to the resulting partitioning;

choosing a specific wavelet denoising technique specified by a combination of, said wavelet filters, said boundary treatment rules, said threshold calculation methods, said threshold application methods, and said noise estimation methods from said object-oriented library of denoising techniques;

determining the communication requirements based on said partitioning, said parallel object-oriented processors, and said wavelet filters;

mapping said denoising technique onto said parallel object-oriented processors;

denoising said data on said parallel object-oriented processors according to said denoising technique, and

agglomerating the foregoing to obtain said denoised data.